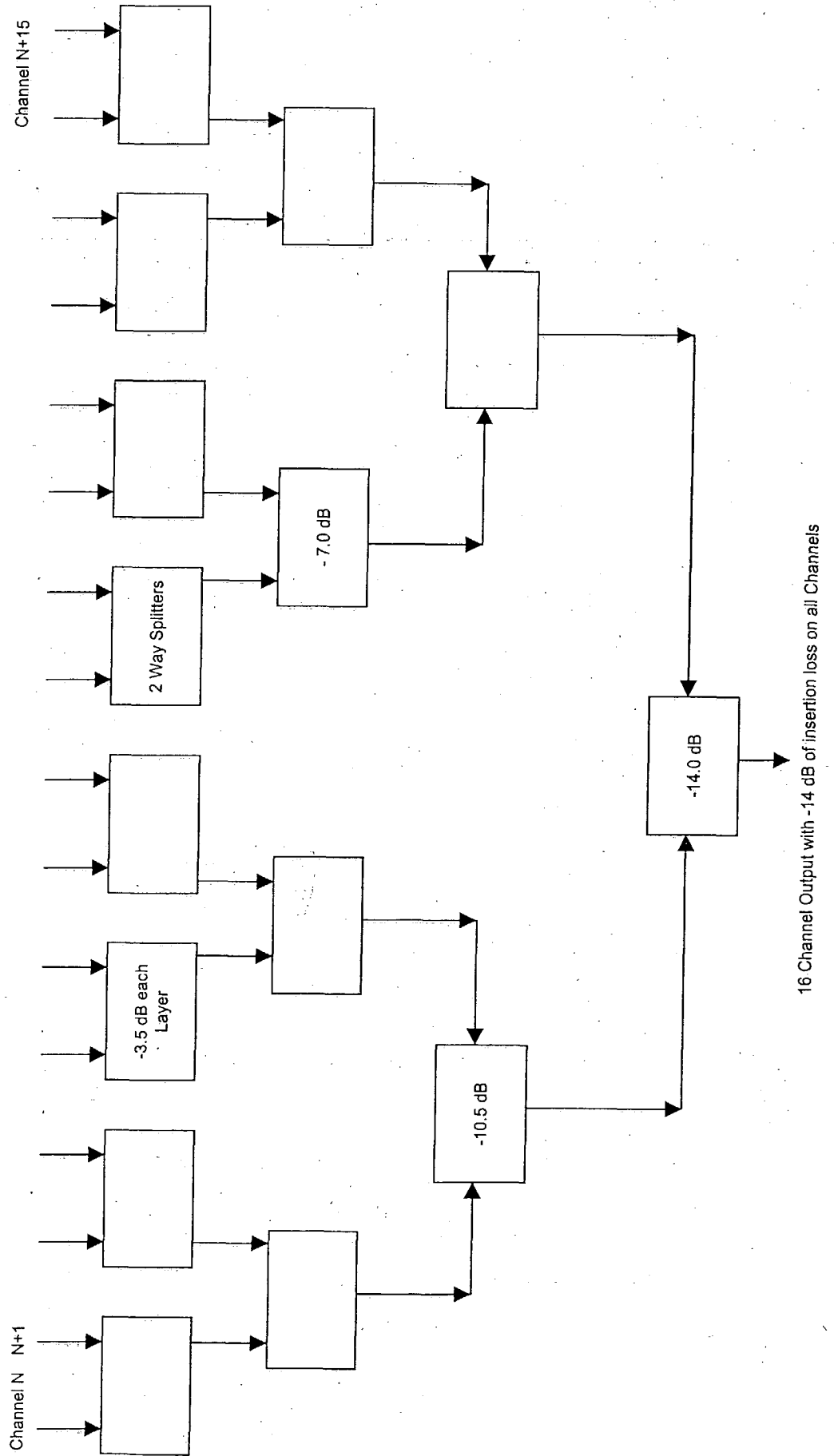
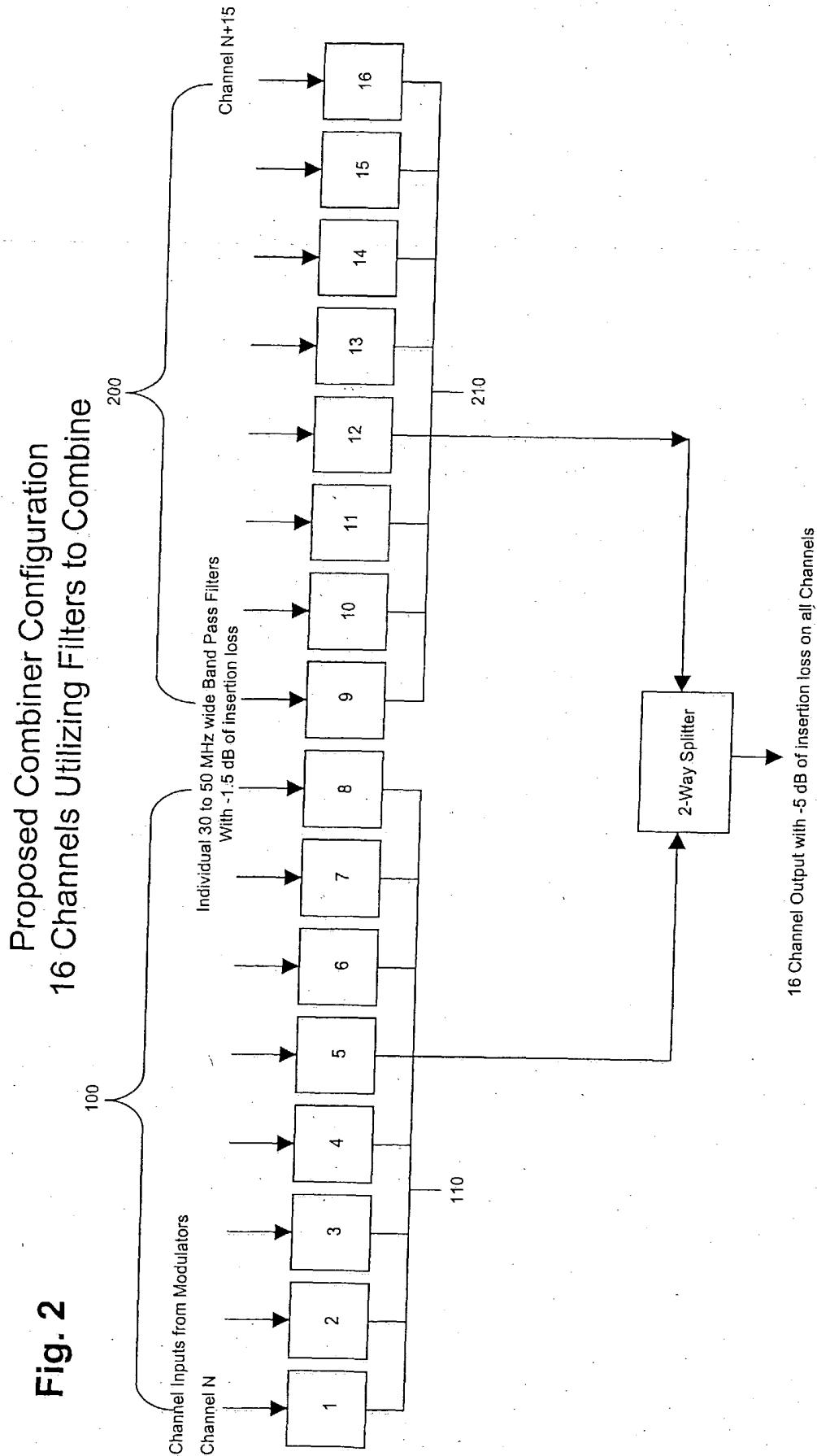


Standard Combiner Configuration
16 Channels Utilizing Broad Band Splitters

Fig. 1





The filters remove any out of band noise or spurs developed by the modulators as well as provide the required isolation to combine the channels from many different sources onto a single signal conduit.

Applicant(s): Dale W. Marland

Title: APPARATUS AND METHOD FOR COMBINING CATV CHANNELS WITH REDUCED INSERTION LOSS

Our Docket No.: 902_059 NP

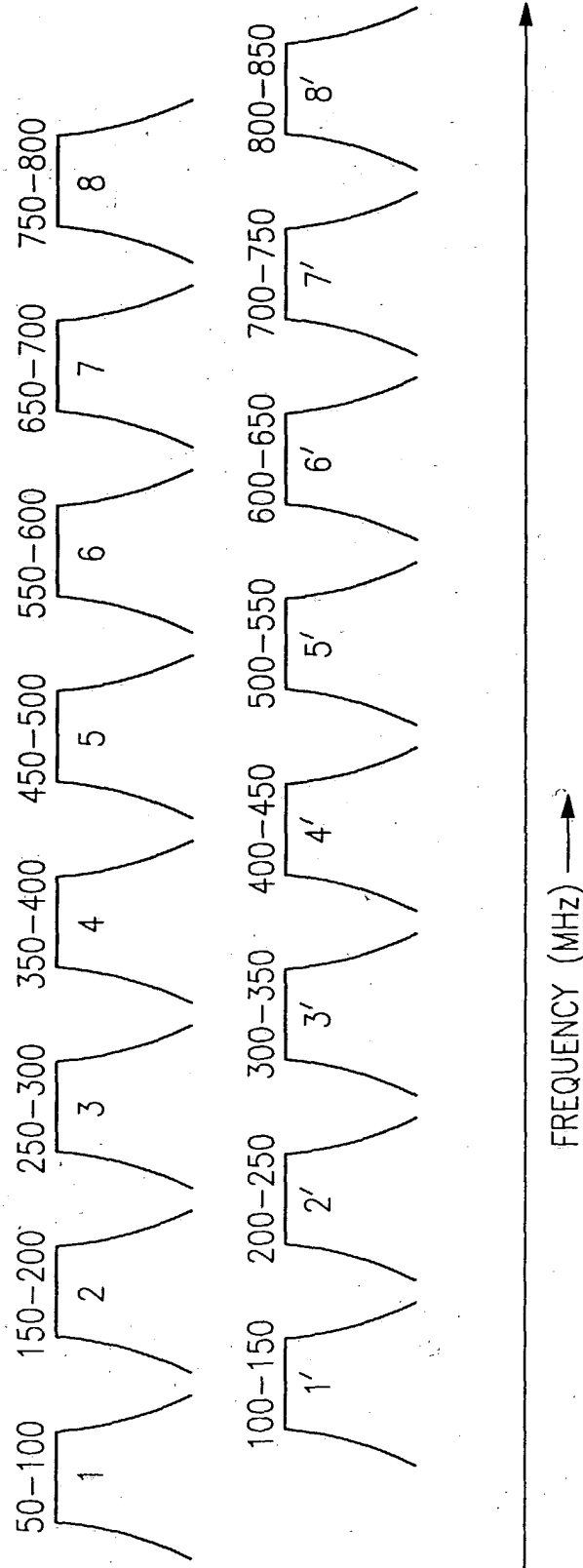


FIG. 3

FIG. 4

| Filter | Channel No. | | Bandwidth |
|--------|-------------|----|-------------|
| | CATV | TV | |
| | T7 | | 5.75-11.75 |
| | T8 | | 11.75-17.75 |
| | T9 | | 17.75-23.75 |
| | T10 | | 23.75-29.75 |
| | T11 | | 29.75-35.75 |
| | T12 | | 35.75-41.75 |
| | T13 | | 41.75-47.75 |
| | TV - IF | | 40-46 |
| | 2 | 2 | 54-60 |
| | 3 | 3 | 60-66 |
| | 4 | 4 | 66-72 |
| | 5 | 5 | 76-82 |
| | 6 | 6 | 82-88 |
| | FM | | 88-108 |
| 1 | A5 | 95 | 90-96 |
| | A4 | 96 | 96-102 |
| | A3 | 97 | 102-108 |
| | A2 | 98 | 108-114 |
| | A1 | 99 | 114-120 |
| | A | 14 | 120-126 |
| | B | 15 | 126-132 |
| 1' | C | 16 | 132-138 |
| | D | 17 | 138-144 |
| | E | 18 | 144-150 |
| | F | 19 | 150-156 |
| | G | 20 | 156-162 |
| | H | 21 | 162-168 |
| | I | 22 | 168-174 |
| 2 | 7 | 7 | 174-180 |
| | 8 | 8 | 180-186 |
| | 9 | 9 | 186-192 |
| | 10 | 10 | 192-198 |
| | 11 | 11 | 198-204 |
| | 12 | 12 | 204-210 |
| | 13 | 13 | 210-216 |
| 2' | J | 23 | 216-222 |
| | K | 24 | 222-228 |
| | L | 25 | 228-234 |
| | M | 26 | 234-240 |
| | N | 27 | 240-246 |
| | O | 28 | 246-252 |
| | P | 29 | 252-258 |
| 3 | Q | 30 | 258-264 |
| | R | 31 | 264-270 |
| | S | 32 | 270-276 |
| | T | 33 | 276-282 |
| | U | 34 | 282-288 |
| | V | 35 | 288-294 |
| | W | 36 | 294-300 |
| 3' | AA | 37 | 300-306 |
| | BB | 38 | 306-312 |
| | CC | 39 | 312-318 |
| | DD | 40 | 318-324 |
| | EE | 41 | 324-330 |
| | FF | 42 | 330-336 |
| | GG | 43 | 336-342 |

| Filter | Channel No. | | Bandwidth |
|--------|-------------|-----|-----------|
| | CATV | TV | |
| 3' | HH | 44 | 342-348 |
| 4 | II | 45 | 348-354 |
| | JJ | 46 | 354-360 |
| | KK | 47 | 360-366 |
| | LL | 48 | 366-372 |
| | MM | 49 | 372-378 |
| | NN | 50 | 378-384 |
| | OO | 51 | 384-390 |
| 4' | PP | 52 | 390-396 |
| | QQ | 53 | 396-402 |
| | RR | 54 | 402-408 |
| | SS | 55 | 408-414 |
| | TT | 56 | 414-420 |
| | UU | 57 | 420-426 |
| | VV | 58 | 426-432 |
| 5 | WW | 59 | 432-438 |
| | XX | 60 | 438-444 |
| | YY | 61 | 444-450 |
| | ZZ | 62 | 450-456 |
| | AAA | 63 | 456-462 |
| | BBB | 64 | 462-468 |
| | CCC | 65 | 468-474 |
| 5' | DDD | 66 | 474-480 |
| | EEE | 67 | 480-486 |
| | FFF | 68 | 486-492 |
| | GGG | 69 | 492-498 |
| | HHH | 70 | 498-504 |
| | III | 71 | 504-510 |
| | JJJ | 72 | 510-516 |
| 6 | KKK | 73 | 516-522 |
| | LLL | 74 | 522-528 |
| | MMM | 75 | 528-534 |
| | NNN | 76 | 534-540 |
| | OOO | 77 | 540-546 |
| | PPP | 78 | 546-552 |
| | QQQ | 79 | 552-558 |
| 6' | RRR | 80 | 558-564 |
| | SSS | 81 | 564-570 |
| | TTT | 82 | 570-576 |
| | UUU | 83 | 576-582 |
| | VVV | 84 | 582-588 |
| | WWW | 85 | 588-594 |
| | XXX | 86 | 594-600 |
| 7 | YYY | 87 | 600-606 |
| | ZZZ | 88 | 606-612 |
| | 89 | 89 | 612-618 |
| | 90 | 90 | 618-624 |
| | 91 | 91 | 624-630 |
| | 92 | 92 | 630-636 |
| | 93 | 93 | 636-642 |
| | 94 | 94 | 642-648 |
| | 100 | 100 | 648-654 |
| | 101 | 101 | 654-660 |
| | 102 | 102 | 660-666 |
| | 103 | 103 | 666-672 |
| | 104 | 104 | 672-678 |

| Filter | Channel No. | | Bandwidth |
|--------|-------------|-----|-----------|
| | CATV | TV | |
| 7 | 105 | 105 | 678-684 |
| 7' | 106 | 106 | 684-690 |
| | 107 | 107 | 690-696 |
| | 108 | 108 | 696-702 |
| | 109 | 109 | 702-708 |
| | 110 | 110 | 708-714 |
| | 111 | 111 | 714-720 |
| | 112 | 112 | 720-726 |
| 8 | 113 | 113 | 726-732 |
| | 114 | 114 | 732-738 |
| | 115 | 115 | 738-744 |
| | 116 | 116 | 744-750 |
| | 117 | 117 | 750-756 |
| | 118 | 118 | 756-762 |
| | 119 | 119 | 762-768 |
| 8' | 120 | 120 | 768-774 |
| | 121 | 121 | 774-780 |
| | 122 | 122 | 780-786 |
| | 123 | 123 | 786-792 |
| | 124 | 124 | 792-798 |
| | 125 | 125 | 798-804 |
| | 126 | 126 | 804-810 |
| | 127 | 127 | 810-816 |
| | 128 | 128 | 816-822 |
| | 129 | 129 | 822-828 |
| | 130 | 130 | 828-834 |
| | 131 | 131 | 834-840 |
| | 132 | 132 | 840-846 |
| | 133 | 133 | 846-852 |
| | 134 | 134 | 852-858 |
| | 135 | 135 | 858-864 |
| | 136 | 136 | 864-870 |
| | 137 | 137 | 870-876 |
| | 138 | 138 | 876-882 |
| | 139 | 139 | 882-888 |
| | 140 | 140 | 888-894 |
| | 141 | 141 | 894-900 |
| | 142 | 142 | 900-906 |
| | 143 | 143 | 906-912 |
| | 144 | 144 | 912-918 |
| | 145 | 145 | 918-924 |
| | 146 | 146 | 924-930 |
| | 147 | 147 | 930-936 |
| | 148 | 148 | 936-942 |
| | 149 | 149 | 942-948 |
| | 150 | 150 | 948-954 |
| | 151 | 151 | 954-960 |
| | 152 | 152 | 960-966 |
| | 153 | 153 | 966-972 |
| | 154 | 154 | 972-978 |
| | 155 | 155 | 978-984 |
| | 156 | 156 | 984-990 |
| | 157 | 157 | 990-996 |
| | 158 | 158 | 996-1002 |

Applicant(s): Dale W. Marland

Title: APPARATUS AND METHOD FOR COMBINING CATV CHANNELS WITH REDUCED INSERTION LOSS

Our Docket No.: 902_059 NP

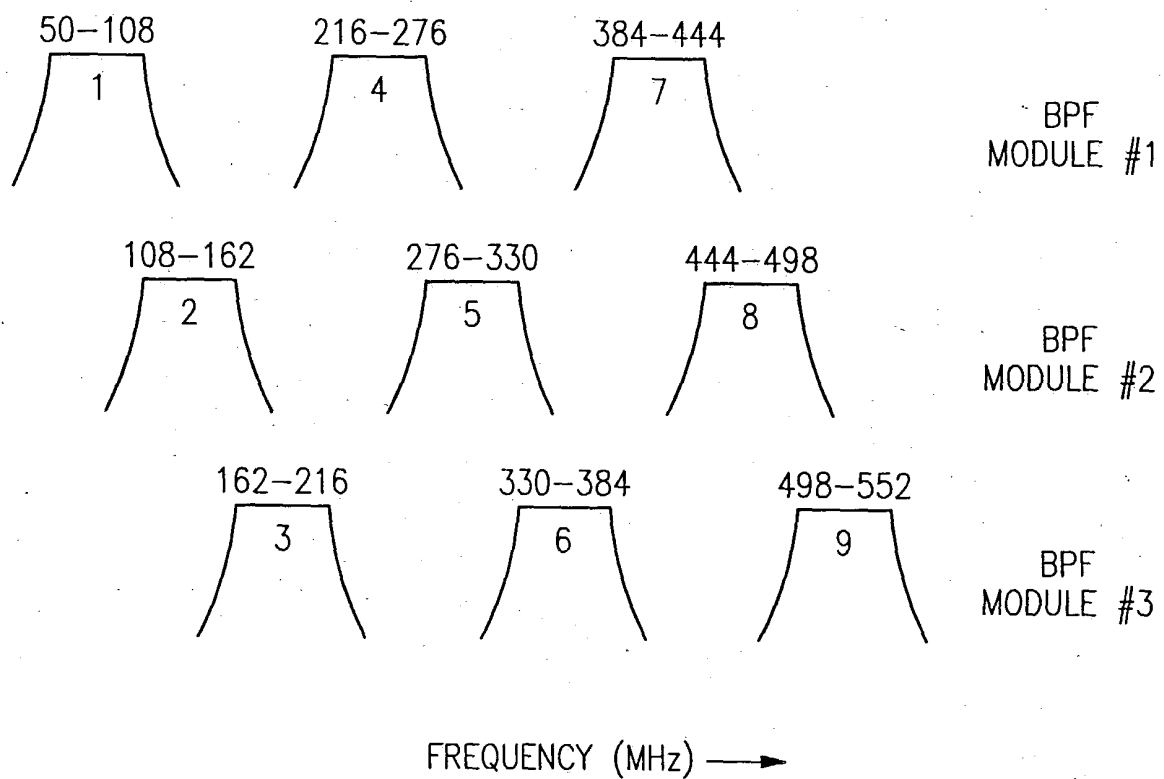


FIG.5

FIG. 6

| Filter | Channel No. | | Bandwidth |
|--------|-------------|----|-------------|
| | CATV | TV | |
| | T7 | | 5.75-11.75 |
| | T8 | | 11.75-17.75 |
| | T9 | | 17.75-23.75 |
| | T10 | | 23.75-29.75 |
| | T11 | | 29.75-35.75 |
| | T12 | | 35.75-41.75 |
| | T13 | | 41.75-47.75 |
| | TV - IF | | 40-46 |
| 1 | 2 | 2 | 54-60 |
| | 3 | 3 | 60-66 |
| | 4 | 4 | 66-72 |
| | 5 | 5 | 76-82 |
| | 6 | 6 | 82-88 |
| | FM | | 88-108 |
| | A5 | 95 | 90-96 |
| | A4 | 96 | 96-102 |
| 2 | A3 | 97 | 102-108 |
| | A2 | 98 | 108-114 |
| | A1 | 99 | 114-120 |
| | A | 14 | 120-126 |
| | B | 15 | 126-132 |
| | C | 16 | 132-138 |
| | D | 17 | 138-144 |
| | E | 18 | 144-150 |
| 3 | F | 19 | 150-156 |
| | G | 20 | 156-162 |
| | H | 21 | 162-168 |
| | I | 22 | 168-174 |
| | 7 | 7 | 174-180 |
| | 8 | 8 | 180-186 |
| | 9 | 9 | 186-192 |
| | 10 | 10 | 192-198 |
| 4 | 11 | 11 | 198-204 |
| | 12 | 12 | 204-210 |
| | 13 | 13 | 210-216 |
| | J | 23 | 216-222 |
| | K | 24 | 222-228 |
| | L | 25 | 228-234 |
| | M | 26 | 234-240 |
| | N | 27 | 240-246 |
| | O | 28 | 246-252 |
| | P | 29 | 252-258 |
| | Q | 30 | 258-264 |
| | R | 31 | 264-270 |
| | S | 32 | 270-276 |
| 5 | T | 33 | 276-282 |
| | U | 34 | 282-288 |
| | V | 35 | 288-294 |
| | W | 36 | 294-300 |
| | AA | 37 | 300-306 |
| | BB | 38 | 306-312 |
| | CC | 39 | 312-318 |
| | DD | 40 | 318-324 |
| 6 | EE | 41 | 324-330 |
| | FF | 42 | 330-336 |
| | GG | 43 | 336-342 |
| | HH | 44 | 342-348 |
| | II | 45 | 348-354 |
| | JJ | 46 | 354-360 |
| | KK | 47 | 360-366 |
| | LL | 48 | 366-372 |
| 7 | MM | 49 | 372-378 |
| | NN | 50 | 378-384 |
| | OO | 51 | 384-390 |
| | PP | 52 | 390-396 |
| | QQ | 53 | 396-402 |
| | RR | 54 | 402-408 |
| | SS | 55 | 408-414 |
| | TT | 56 | 414-420 |
| 8 | UU | 57 | 420-426 |
| | VV | 58 | 426-432 |
| | WW | 59 | 432-438 |
| | XX | 60 | 438-444 |
| | YY | 61 | 444-450 |
| | ZZ | 62 | 450-456 |
| | AAA | 63 | 456-462 |
| | BBB | 64 | 462-468 |
| 9 | CCC | 65 | 468-474 |
| | DDD | 66 | 474-480 |
| | EEE | 67 | 480-486 |
| | FFF | 68 | 486-492 |
| | GGG | 69 | 492-498 |
| | HHH | 70 | 498-504 |
| | III | 71 | 504-510 |
| | JJJ | 72 | 510-516 |
| | KKK | 73 | 516-522 |
| | LLL | 74 | 522-528 |
| | MMM | 75 | 528-534 |
| | NNN | 76 | 534-540 |
| | OOO | 77 | 540-546 |
| | PPP | 78 | 546-552 |

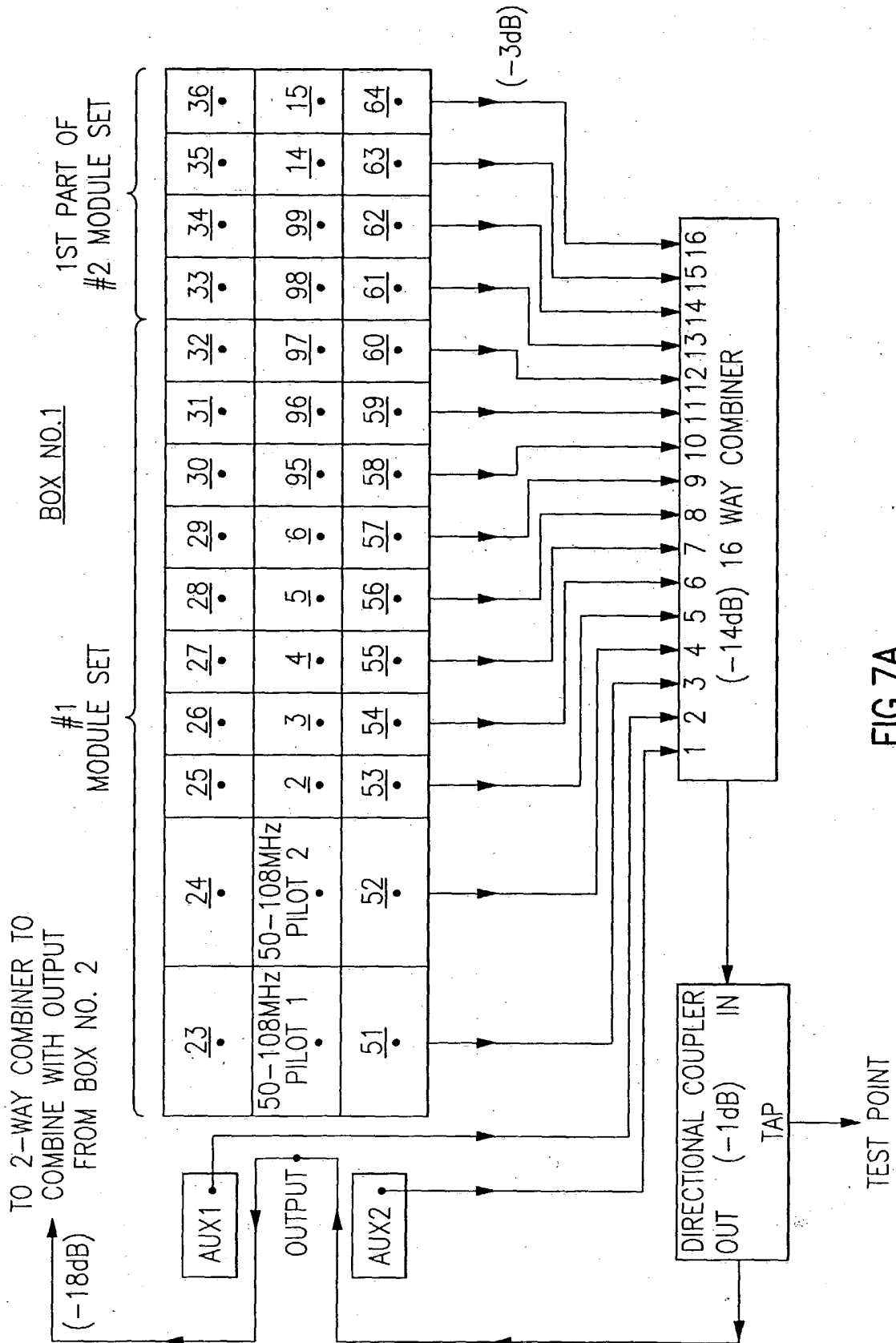
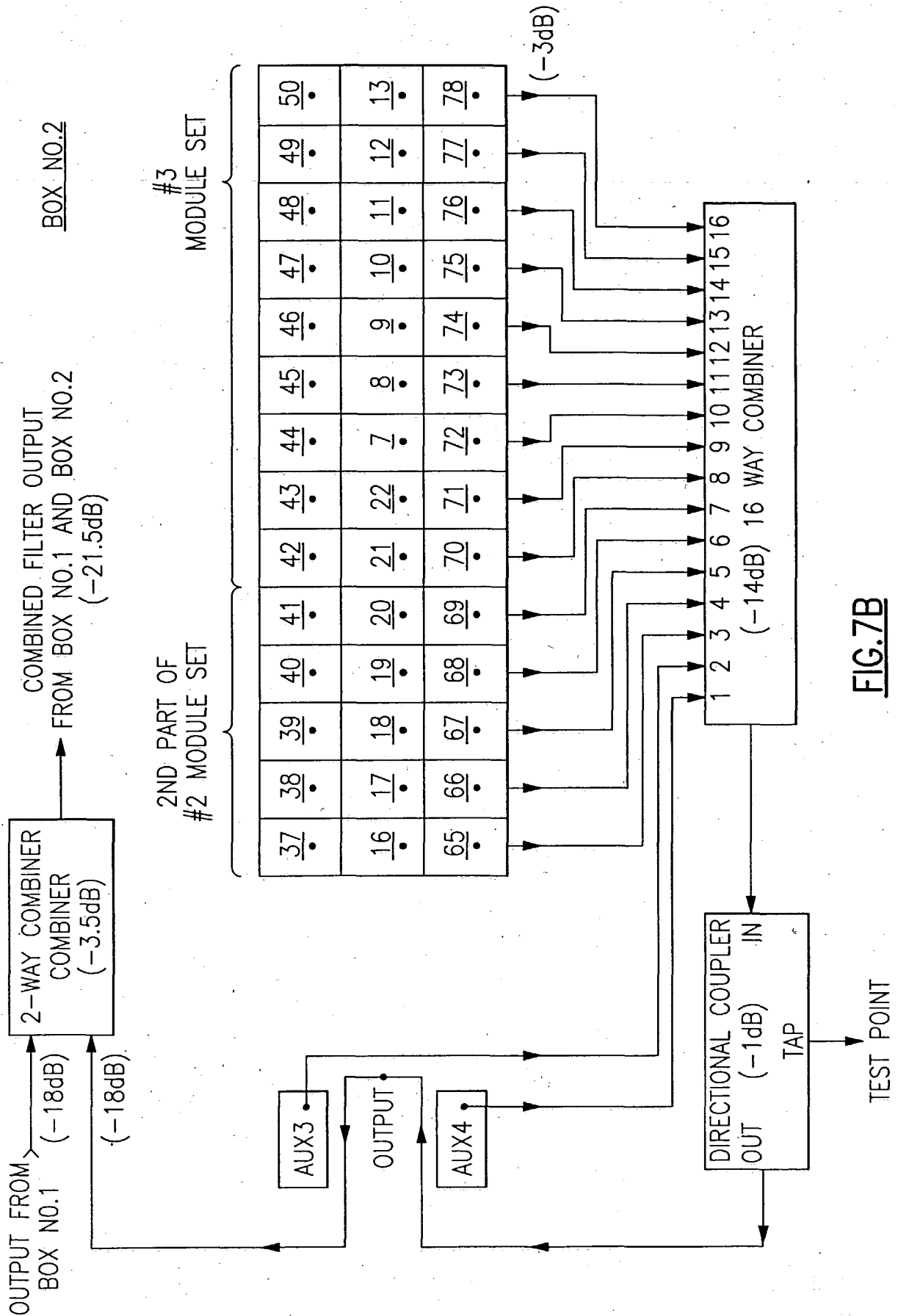


FIG. 7A



Applicant(s): Dale W. Marland

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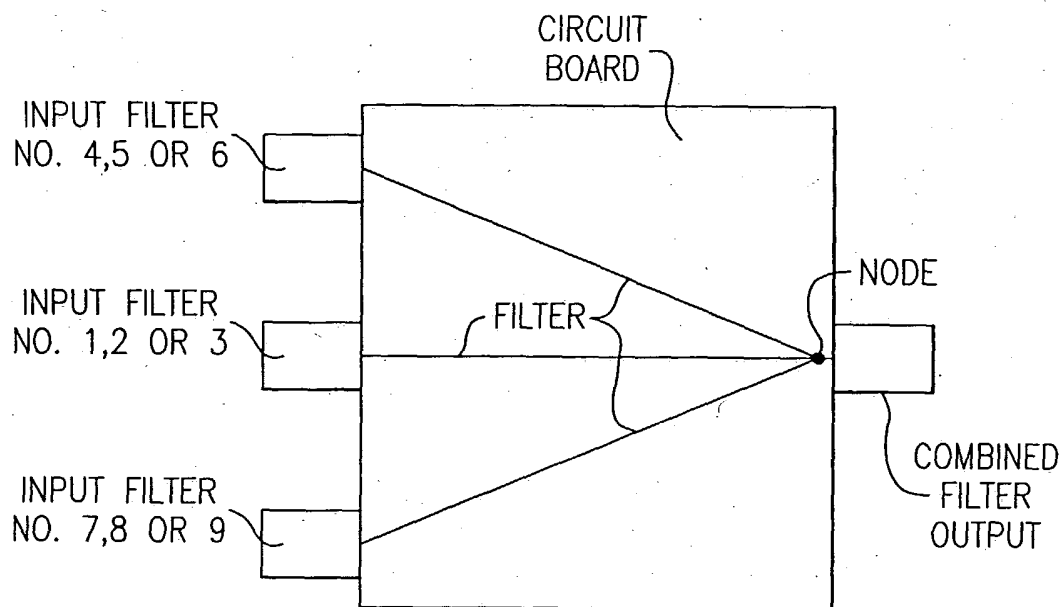


FIG.8

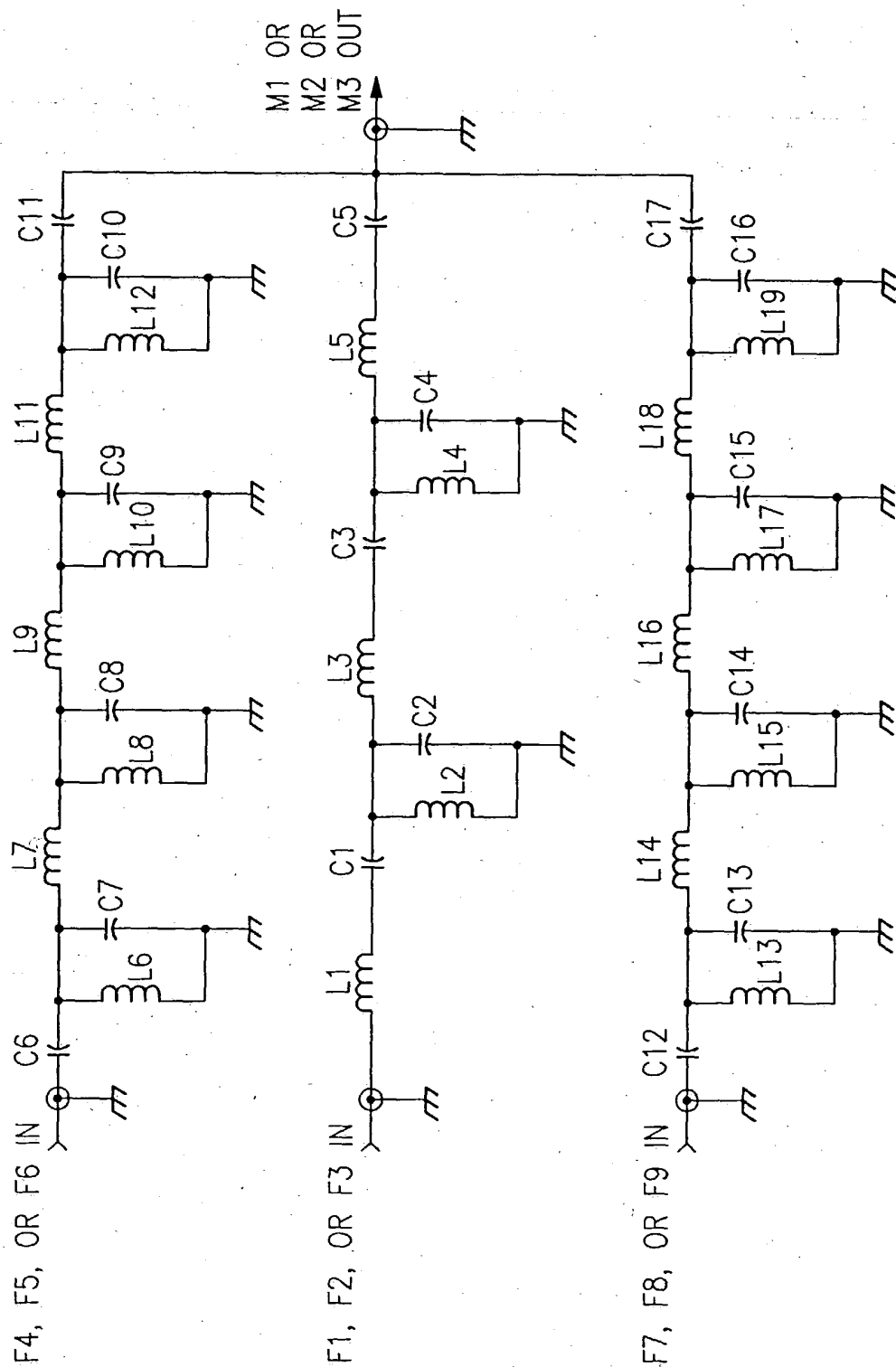


FIG. 9